

THE LITHOBIOMORPHA OF COLORADO.

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The records given in the present paper are based upon a study of collections made by Prof. T. D. A. Cockerell, chiefly in Boulder Co., and by the author during brief periods spent near Glenwood Springs (1904) and at Colorado Springs and Manitou (1910). The list is necessarily but partial, and when collecting for Myriapoda has been done in other sections the number of species will undoubtedly be considerably increased.

Family *Henicopidae*.

In addition to the *Lamyctes* listed below, another member of the family will in all probability be found at upper elevations in the Colorado Mts. This is *Zygethobius dolichopus* Chamb., which has been found by the author in the Uintah Mts., as well as in the Wahsatch and Sierra Nevada Ranges. It may readily be distinguished from the *Lamyctes* by its larger size, by having the posterior angles of the ninth, eleventh and thirteenth dorsal plates produced, whereas they are straight in the *Lamyctes*, and by having the tarsi all biarticulate instead of those of the first thirteen pairs being undivided.

Lamyctes fulvicornis Meinert.

Two specimens, agreeing fully with some from Wisconsin, Ill., etc., were taken by the author at Colorado Springs (Aug., 1910).

Family *Lithobiidae*.

But one genus of this family is represented by the species thus far found within the State, namely, *Lithobius*. None of the species conforms to *Monotarsobius*, which Verhoeff would separate from *Lithobius*. Probably *Vothropolys* will be found in the western or north-western parts of the State, where *B. bipunctatus* and possibly also *B. permunda* or an allied species may be expected. The following key will aid in showing the relations between species thus far known from the region.

Key to Species of *Lithobius*.

- a. Angles of the 7th, 9th, 11th and 13th dorsal plates produced.
Articles of antennæ 30-40; prosternal
teeth, 6 + 6, 7 + 7 *L. mordax* Koch.
- aa. Angles of the 9th, 11th and 13th dorsal plates produced.
 - b. Claw of anal legs armed with a single spine or accessory claw at base.

- c. Claw of penult legs armed with two spines.
Spines of penult legs 1, 3, 3, 2; of first legs 1, 1, 1; claw of female gonopods entire *L. ædipes* Bollman.
- cc. Claw of penult legs armed with a single spine.
Spines of penult legs 1, 3, 3, 1; of first, 1, 3, 1; claw of gonopods of female tripartite *L. harrietae* Chamberlin.
- bb. Claw of anal legs unarmed.
Coxal pores transverse; articles of antennæ 33 to 43 or more; ocelli 20 to 50 *L. forficatus* Linn.
- aaa. Angles of none of the dorsal plates produced.
- b. Claw of the anal legs unarmed.
Spines of first legs 2, 3, 1-2, 3, 2; of anal 1, 3, 2, 1; claw of female gonopods entire *L. jowensis* Meinert.
- bb. Claw of anal legs armed with one spine at base.
- c. Articles of antennæ 25-32.
Spines of first legs 0, 1, 1; of penult legs 1, 3, 3, 1; of anal 1, 3, 1, 0-1, 3, 2, 0 *L. tivius* Chamberlin.
- cc. Articles of antennæ normally 20-21. (Spines of penult legs 1, 3, 3, 2.)
- d. Spines of anal legs 1, 3, 2, 0; penult legs armed with one spine at base; spines of first legs 1, 3, 1; claw of female gonopods tripartite; length, 12-16 mm *L. dopaintus*, sp. nov.
- dd. Spines of anal legs 1, 3, 2, 0; claw of penult legs with two spines; spines of 1st legs 1, 1, 1-1, 2, 1; claw of female gonopods mostly bipartite; length, 7-8 mm . . . *L. coloradensis* Ckll.

Lithobius mordax Koch.

A single male appearing to be this species has been examined from the State. It had lost the posterior pairs of legs. The species abounds in the States to the south-east.

Boulder Co. (Cockerell).

Lithobius ædipes Bollman.

A number of specimens, both males and females, were taken by the author at Manitou (1910). The species was known previously only from the type specimens which were from Arkansas.

Lithobius harrieta Chamberlin.

Described originally from specimens collected some miles east of Glenwood Springs (author, 1904). Several specimens of the species have also been received from Prof. Cockerell, who secured them in Boulder Co.

Lithobius forficatus (Linnæus).

Numerous specimens were obtained by the author at Colorado Springs (1910). The species will doubtless be found common in and about towns along the western sides of the mountains, and especially northward. This is the most abundant North American member of the genus, occurring throughout the northern sections, but not ranging into the southern States.

Lithobius dopaintus, sp. nov.

None of the dorsal plates with posterior angles produced.

Articles of antennæ 20.

Ocelli about 15, arranged in four series: 1 + e, 5, 3, 3. The ocelli of the most dorsal series distinctly larger than the others.

Prosternal teeth 2 + 2.

Last two pairs of coxæ laterally armed, the last three pairs dorsally armed.

Spines of the first legs 1, 3, 1; of the penult 1, 3, 3, 2, the claw armed with a single spine; of the anal 1, 3, 3, 1, the claw armed likewise with a single spine.

Coxal pores round, 4, 6, 5, 5.

Claw of the gonopods of the female tripartite; basal spines 2 + 2, apically bi- or tridentate.

Length, 12-16 mm.

Locality, Manitou (author, 1910).

About a dozen specimens were secured. Apparently most closely related to *L. socius* Chamb. of Utah.

Lithobius tivius Chamberlin.

Angles of none of the dorsal plates produced.

Articles of anteanæ 25-32, but mostly 28 and 30.

Ocelli mostly 8 or 9, arranged in two series, which form a narrowly elongate patch: 1 + 4, 3-1 + 5, 3.

Prosternal teeth 2 + 2.

None of the posterior coxæ armed either laterally or dorsally.

Spines of the first legs 0, 1, 1; of penult 1, 3, 3, 1, the claw armed with one spine; of anal 1, 3, 1, 0 (mostly) -1, 3, 2, 0 (rarely 1, 3, 0, 0), the claw armed with one spine.

Coxal pores round, 3, 4, 4, 3.

Claw of the gonopods of the female tripartite, one lateral lobe commonly small, and sometimes almost obliterated, leaving the claw bipartite. Basal spines 2 + 2.

Length, ad 8 mm.

Locality, Manitou (author, 1910).

Numerous specimens, agreeing mostly with the description above, were secured. These bring the species still closer to *L. exiguus* Meinert, from which, however, all the western specimens examined seem to present constant differences.

Lithobius coloradensis Cockerell.

Syn. *Lithobius kochii* Stuxberg, Bollman, 1888, Proc. U. S. N. M.

Lithobius kochii, var. *coloradensis* Cockerell, 1893, Tr. A.

Ent. Soc.

Lithobius kochii Stuxburg, Chamberlin, 1909 (in part), Ann.

Ent. Soc. America.

Reported from West Cliff (Cockerell, collector) by Bollman. Several specimens in bad shape, in having lost the last pairs of legs, but seeming to be this species, were secured by Prof. Cockerell in Boulder Co. and sent to the author. The specimens seen, upon careful study are found not to be identical with the California form.

Lithobius jowensis Meinert.

Syn. *L. bilabiatus* Bollman (nec Wood), 1887, Proc. U. S. N. M.

L. bruneri Kenyon, 1893, CANADIAN ENTOMOLOGIST.

No dorsal plates with angles produced.

Antennæ with 20-25 articles, the number of articles of the left antenna exceeding those of the right in the Colorado specimens examined.

Ocelli about 14, in 4 series: 1 + 4, 4, 3, 2.

Prosternal teeth 2 + 3-3 + 3.

Last three pairs of coxæ dorsally armed; last two pairs laterally armed.

Spines of 1st legs 2, 3, 1-2, 3, 2; of penult 1, 3, 3, 2; the claw armed with two spines; of anal 1, 3, 2, 1, the claw unarmed.

Coxal pores round, 3, 4, 4, 3.

Gonopods in female with the claw entire; basal spines conical, 2 + 2.

Length, 11-15 mm.

Locality, Manitou (author, 1910).

Several specimens agreeing essentially with the description above were secured.